



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,396	12/21/2001	John B. Burnett	1540-US	1075

7590 08/19/2004
Legal Department
Teradyne, Inc.
321 Harrison Avenue
Boston, MA 02118

EXAMINER

LEE, PATRICK J

ART UNIT	PAPER NUMBER
----------	--------------

2878

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,396

Applicant(s)

BURNETT, JOHN B.

Examiner

Patrick J. Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to amendment filed July 19th, 2004.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Xu et al 6,069,690.

Xu et al disclose a system for analyzing a wafer (W) on stage (240) comprising a beamsplitter (219), a laser (201), a camera (230), and beam dump (221).

With respect to claim 10, Xu et al disclose the laser (201) as a source of illumination emitting light in a first direction, a beamsplitter (219) as a mirror, an inspection area on wafer (W), a camera (230) facing the inspection area on wafer (W), and a beam dump (221) as a means for absorbing extraneous light. Beam dump (221) is located on the opposite side of the source of illumination (see column 7, lines 1-7).

4. Claims 10 & 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Chiang 6,191,850 B1.

Chiang discloses a system for inspection of an object (46) comprising a light source (11), a camera (50), a beamsplitter (40), and a far end wall (47).

With respect to claim 10, Chiang discloses a light source (11) as a source of illumination, a beamsplitter (40) as a mirror, an inspection area (46) on object surface (44), and a camera (50) facing the inspection area (46). Chiang also discloses a wall (47) covered with a light-absorbing material (49) to absorb extraneous light, with the wall on the opposite side of the illumination source (11).

With respect to claim 18, Chiang discloses a video processor (57) and a computer (61) connected to the camera (50).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 & 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al 6,069,690 in view of Lassalle EP 760,486 A1.

With respect to claims 1-2, 11, & 14, Xu et al disclose a beam splitter (219), a source of illumination (201) connected to a first port of the beam splitter, a camera (230) connected to a second port of the beam splitter, an inspection area on wafer (W), and a beam dump (221) as a light trap. However, Xu et al do not disclose the beam dump (221) as having an angular surface. Light traps with an angular surface and a cavity are known and taught by Lassalle. Lassalle discloses a light trap with a cylindrical chamber

(1A) and a conical body (12) located inside in order to form a cavity. Inner wall (4) of the cylindrical chamber (1A) is light absorbing. To modify the teachings of Xu et al with those of Lassalle would have been obvious to one of ordinary skill in order to prevent any extraneous light from adversely affecting the imaging capabilities of the device.

With respect to claim 3, the conical member having a parabolic outer surface is a mere matter of obvious design choice, as it would allow for enhanced ability of the light trap to isolate the extraneous light.

With respect to claim 4, in the modified Xu et al, Lassalle discloses the aperture (9) to receive light in a first direction and a conical member (12) as an angled surface to reflect the light into the cavity formed by cylindrical member (1A).

With respect to claims 5 & 15, the modified Xu et al fails to disclose the use of an angled surface made of a light absorbing material; however, it would have been obvious to one of ordinary skill to include angled light absorbing material as it would allow for the light received by light trap (1) from exiting and adversely affecting the image received at the camera.

With respect to claims 6 & 12, in the modified Xu et al, Lassalle discloses the inner wall (4) surrounding the cavity formed by cylindrical member (1A) to be of a light absorbing material.

With respect to claim 7-8, the selection of materials to make the inner cavity walls and the angled surface would have been obvious to one of ordinary skill as to do so would prevent the image captured from being adversely affected by extraneous light.

With respect to claims 9 & 13, the use of a plurality of angled surfaces and the plurality of cavities would have been obvious to one of ordinary skill in the art, as it is known that mere duplication of parts involves only routine skill in the art.

With respect to claim 16, in the modified Xu et al, Lassalle discloses the light trap (1) to have an inlet member (5) with a conical structure opening therein.

With respect to claim 17, in the modified Xu et al, Lassalle discloses the use of conical surface (12) with a reflecting surface to reflect extraneous light that enters aperture (9).

Response to Arguments

7. Applicant's arguments filed July 19th, 2004 have been fully considered but they are not persuasive.

Applicant's reasons for the position that neither Xu et al nor Chiang teach "a means for absorbing extraneous light from the source of illumination passing through the mirror, said means positioned on a side of the mirror opposite the source of illumination" were not clearly explained.

Chiang explicitly states that the far end wall (47) has a light absorbing material (49) so that "virtually all light striking this surface is not reflected back again" (see column 4, lines 14-17). Whatever light passing through mirror (40) and not reflected down to surface (44) is considered to be extraneous with the definition that the light does not contribute to the imaging of the object (44). Xu et al define a similar structure in which light from laser (231) which does not get reflected by beam splitter (219) down to wafer (W) but rather passes through the beam splitter (219) is considered to be

extraneous light, non-essential to the imaging by camera (230). The light that passes through to beam dump (221) is absorbed.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J. Lee
Examiner
Art Unit 2878

PJL
August 10th, 2004


Stephone B. Allen
Primary Examiner